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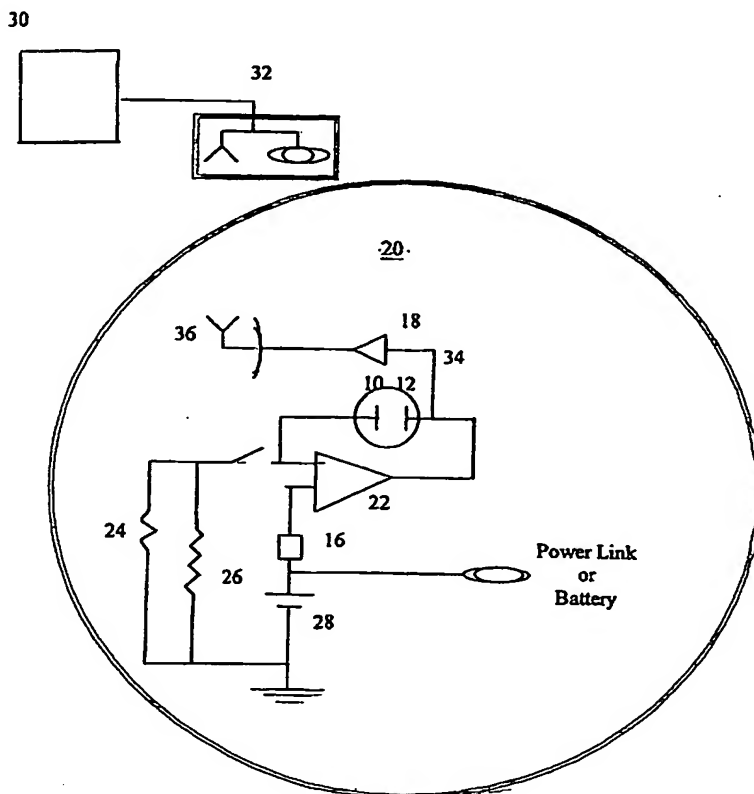
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(54) Title: EMBEDDABLE CORROSION RATE METERS FOR REMOTE MONITORING OF STRUCTURES SUSCEPTIBLE TO CORROSION



(57) **Abstract:** An embeddable corrosion rate meter (ECRM) for detecting and measuring corrosion in metal and concrete structures is provided. The system comprises an electrochemical cell with at least one working electrode evenly separated from a counter electrode, wherein a separation distance between electrodes determines an electrolyte medium resistance and the electrolyte medium resistance is less than or equal to a polarization resistance. The system further includes a signal generator connected to a plurality of resistances for creating a plurality of current amplitudes for generating a current source; a first selector for applying a current through each of the plurality of resistances to the working electrode and counter electrode; a second selector for selecting a duration of a current pulse; a voltmeter/A-D converter having an input impedance $>10^9$ ohms for measuring polarization of the working electrode; and an external reader-head with a data link and power link connected to a computing device for powering the system and collecting corrosion measurements data.